



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Scott M. Rocklage, et al. Examiner: Michael G. Hartley  
Serial No. 09/189,043 Group Art Unit: 1618  
Filed: November 9, 1998 Docket No. 511.1897US1  
Title: METHOD OF PERFUSION IMAGING

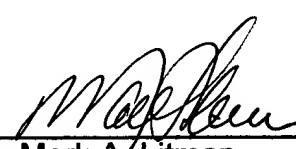
**MAIL STOP ISSUE FEE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

- ☒ Form PTOL-85B (1pg), plus one copy
- ☒ Communication Re: Issue Fee Transmittal, with Authorization for Fee
- ☒ Copy of Notice of Allowance and Issue Fee Due, Notice of Allowability, Examiner's Amendment, Examiner-Initiated Interview Summary, and Determination of Patent Term Adjustment
- ☒ Transmittal Sheet
- ☒ Return postcard

**Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers if an additional extension of time is deemed necessary by the Office. Authorization is hereby given to charge Deposit Account Number 50-1391 if such additional extension is necessary.**

**MARK A. LITMAN & ASSOCIATES, P.A.**  
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Edina, MN 55435 (952-832-9090)

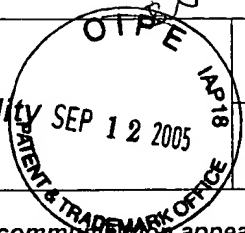
By:   
Atty: Mark A. Litman  
Reg. No. 26,390

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop Issue Fee, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on 9 September.

Mark A. Litman  
Name

  
Signature

# Notice of Allowability



Application No.

09/189,043

Examiner

Michael G. Hartley

Applicant(s)

ROCKLAGE ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/27/2005.
2. ☒ The allowed claim(s) is/are 140-146.
3. ☒ The drawings filed on 11/9/1998 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|   | 9. <input type="checkbox"/> Other _____  |

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### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark Litman on 7/28/2005.

The application has been amended as follows:

#### **PLEASE AMEND THE CLAIMS AS FOLLOWS:**

**Claims 31 and 37-139 have been canceled.**

#### **THE FOLLOWING NEW CLAIMS HAVE BEEN ADDED.**

140. (NEW) A method of detecting blood flow abnormality or variation in a vessel or tissue comprising:

- administering a contrast enhancing amount of a paramagnetic metal containing magnetic resonance magnetic resonance contrast agent into a vessel of a body;

- imaging at least a portion of the body through which the MR contrast agent passes, with a MR imaging technique, thereby collecting temporally spaced sets of 3-D and 2-D data, each data set collected successively through an acquisition time;

- forming a time sequence of image data including early image data and later image data;

- comparing 3-D and 2-D data from the temporally spaced sets set of data by evaluating 2-D and 3-D temporally acquired images by comparing ones of said early image data within said acquisition time with ones of said later image data within said acquisition time and their intensity to assess blood flow or angiographic abnormality or variation.

141. (NEW) A method of detecting blood flow abnormality or variation, in a human body, said method comprising the steps of:

- administering into vasculature of said human body a contrast enhancing amount of a paramagnetic metal containing magnetic resonance contrast agent;

- subjecting said human body to a magnetic resonance image procedure capable of generating from magnetic resonance signals from said human body successive images of temporally spaced images taken over an acquisition time period of at least part of said human body into which said contrast agent passes, said procedure being a magnetic resonance imaging procedure;

- detecting temporal variations in said signals or images; and

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from said temporal variations identifying regions of abnormal or modified blood flow in said human body and providing a quantitative indication of blood flow abnormality or variation.

142. (NEW) A method of detecting and quantitatively evaluating the severity of blood flow abnormality in a human body, said method comprising the steps of:

administering into vasculature of said human body a contrast enhancing amount of a paramagnetic metal containing magnetic resonance contrast agent;

subjecting said human body to a magnetic resonance image procedure capable of generating from magnetic resonance signals from said human body successive images of temporally spaced images taken over an acquisition time period of at least part of said human body into which said contrast agent passes, said procedure being a magnetic resonance imaging procedure, to detect temporal variations in said magnetic resonance signals or images;

detecting blood flow abnormality or flow variation in obstructed blood vessels in said body; and identifying from said temporal variations in said images the blood flow abnormality.

143. (CURRENTLY AMENDED) A method of detecting blood flow abnormality or variation in a blood vessel comprising:

administering a contrast enhancing amount of a paramagnetic metal containing magnetic resonance contrast agent into a blood vessel of a body;

imaging at least a portion of the body through which the MR contrast agent passes, with a magnetic resonance imaging technique, thereby collecting temporally spaced sets of contour data and planar image data, each data set collected successively through an acquisition time;

forming a time sequence of image data including early image data within said acquisition time and later image data from within said acquisition time;

comparing contour data and planar image data a from the temporally spaced sets set of data by evaluating contour data and planar image data temporally acquired images by comparing ones of said early image data with ones of said later image data and their intensity to assess blood flow abnormality or variation.

144. (NEW) The method of claim 143 wherein said comparing step is carried out by a physician visually examining at least two sequenced images.

145. (NEW) The method of claim 143 wherein said comparing step is carried out by software quantitatively manipulating contour data and planar image data from at least two temporally spaced sets of data.

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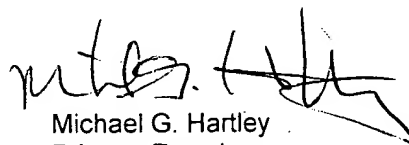
146. (NEW) The method of claim 141 wherein the magnetic resonance imaging procedure is a fast, high speed or single shot imaging procedure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael G. Hartley whose telephone number is (571) 272-0616. The examiner can normally be reached on M-Tu and Th-F, 7:30-4, Telework on Wed..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on (571) 272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael G. Hartley  
Primary Examiner  
Art Unit 1618

7/28/2005

# Examiner-Initiated Interview Summary

Application No.

09/189,043

Applicant(s)

ROCKLAGE ET AL.

Examiner

Michael G. Hartley

Art Unit

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## All Participants:

(1) Michael G. Hartley.

(2) Mark Litman.

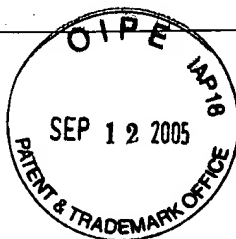
Status of Application: \_\_\_\_\_

(3) \_\_\_\_\_

(4) \_\_\_\_\_

Date of Interview: 28 July 2005

Time: \_\_\_\_\_



## Type of Interview:

- ☒ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☒ No

If Yes, provide a brief description:

## Part I.

Rejection(s) discussed:

*None specifically*

Claims discussed:

*All pending*

Prior art documents discussed:

*None*

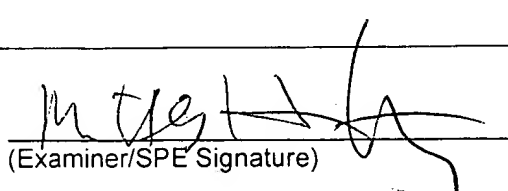
## Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

*See Continuation Sheet*

## Part III.

- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

  
(Examiner/SPE Signature)

\_\_\_\_\_  
(Applicant/Applicant's Representative Signature – if appropriate)



Continuation of Substance of Interview including description of the general nature of what was discussed: The examiner called to inquire about canceling the newly added claims in the supplemental amendment to avoid a restriction under original presentation to place the previously presented claims in condition for allowance. It was agreed upon to cancel said newly added claims 42-139, to avoid this potential restriction. It was also agreed upon to cancel claims 31 and 37-41 and to present these claims as new claims to clarify the claims being allowed and clarify any formality problems with the supplemental amendment, i.e., text removed without showing brackets. Also, new claim 146, drawn to subject matter previously in claim 37 would be added. Said changes would be made by examiner's amendment for allowance..